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EIGHTH BIENNIAL REPORT

OF THE

FISH COMMISSION

OF THE

STATE OF IOWA,

FOR THE YEARS 1887-88 AND 1888-89.

PRINTED BY ORDER OF THE GENERAL ASSEMBLY.

DES MOINES:

G. H. RAGSDALE, STATE PRINTER.

1889.

REPORT OF STATE FISH COMMISSION.

To his Excellency, WILLIAM LARRABEE, Governor of Iowa:

I hereby present you with my biennial report, the same being the Eighth Biennial Report of the State Fish Commission.

During the biennial period I have studiously endeavored to so conduct the business of the Commission, and expend the fund appropriated for its use, that there should be the best possible returns from the work under my supervision.

That I should succeed in all my undertakings, would exceed my own expectations. Whether as a whole they have been productive of satisfactory results, must be left with the people to determine.

To fully meet with the requirements of the work, I find a practical knowledge of natural history, science, civil engineering and law to be necessary. That any person should be perfect in each of these diverse callings, would hardly be expected, and such a knowledge as may fit him for the various duties devolving upon him can only be acquired by time and experience.

I have endeavored to make such a study of the present situation as may enable me to present the condition of this institution in a clear and concise manner; as I think it is necessary to do so, in order that your Excellency, the coming legislature and the people may more fully understand the exact condition of all matters pertaining to the Commission and the laws enacted for its purposes, and for the protection of fish in public waters.

The propagation and distribution of fish is no longer an experiment. It has attained such proportions in many of the States that it is a settled public enterprise, from which the people are enjoying such returns as warrant the continuance of the work, and of liberal appropriations. More thorough investigation of the work of other Commissions; of the demands made upon our own, and its necessities, in order that it may successfully contribute to these demands,

is due from our legislative committees, and all others interested in the welfare and prosperity of the people of Iowa.

The first plant for the propagation of fish was established at Anamosa, by the acts of the Sixteenth General Assembly. A magnificent spring furnished an abundance of water for both hatchery and preserves. It was located in a narrow ravine, at some distance from the public highway, and the ponds were liable to overflow from high water.

The action of the Twenty-first General Assembly shows that in its judgment the location was not wisely chosen, and they proceeded to relocate on Spirit Lake, in Dickinson county. If it had been left optional with me to locate at any point about our system of lakes that I thought most practicable, I should have chosen a spring situated on West Okoboji Lake, as offering the best natural advantages.

To all appearances this new location was much better adapted to the purposes of propagating and raising fish. There was an abundance of water for all purposes. A tract of land lying between Spirit and East Okoboji Lakes was donated to the State by the Spirit Lake Hotel and Transportation Company. At this new location, immediately after my appointment as Commissioner, in 1886, I proceeded to construct the necessary ponds, and a hatching-house of such dimensions as would afford us ample room for handling large quantities of eggs. During the season of 1887 we experienced no difficulty in obtaining an abundance of water.

Owing to the fact that there was less than five feet difference in the level of the two lakes, we were unable to construct a hatchery with sufficient head of water for convenient manipulation; and on account of the temperature of the lake water, ice formed in the ponds to so great a thickness that we found it necessary to excavate our winter ponds to a depth that was two feet or more below the level of the lower lake, and, of course, we could not drain the ponds. It is quite necessary that fish-ponds should be drained and thoroughly cleansed at least once a year. It is also essential to drain them for the purpose of removing the small fry for distribution.

The dry seasons of 1887 and 1888 lowered the stage of water in Spirit Lake until we were seriously threatened with a total exhaustion of the four foot head that we had when first located.

This season (1889), has proven in this immediate vicinity a counterpart of the two preceding ones, and while we have had a supply that was adequate to all requirements for ponds already constructed,

it has precluded all attempts to increase our capacity by constructing more breeding ponds, and we are likely to have serious trouble for water for hatching purposes this winter. It was impossible to place the hatchery floor below the level of the lower lake, as it would have been flooded. Now, that the upper lake has receded until the water level is more than three feet lower than when the hatching house was built, the hatching floor is nearly on a level with the water in the lake from which we obtain our supply.

I have no knowledge as to who was responsible for the selection of this location, but in a State, or vicinity even, that affords so many locations that are admirably adapted to all the requirements of a model hatching and breeding station, it appears to me that a more thorough examination of advantages of other points should have been made before relocating.

As I stated, in the seventh biennial report, we find the waters of Spirit Lake of superior quality for winter hatching. It is colder at this season than spring water; the period of incubation is longer, and the percentage of healthful fish hatched is greater than when spring water is used. But in retarding incubation, the time between hatching and distribution is also lessened, for on account of the rise in the temperature in the lakes the fry has to be distributed quite as early as otherwise, and we cannot keep them in the nursery over six or seven weeks.

The water in our preserves and breeding-ponds reaches a temperature during the summer months that is fatal to fishes of the salmon family, and consequently instead of having preserves filled with adult fish from which to take our supply of eggs annually, we have to purchase them from neighboring commissions, or from private individuals.

Carp and most of our native varieties thrive well in this water in the summer season, and I do not doubt our ability to make, with additional breeding ponds, large plants of them each season, if we can depend on our present water supply.

We have for years been experimenting with various varieties of fish foreign to our waters, with the vain hope that eventually we should succeed in seeing them populate our lakes and streams as they do their native habitat.

Other States have done likewise, and all have arrived at the same conclusion, viz.: that our prairie streams must, if we hope to see them again replenished, be stocked with such varieties as are native to them.

Some of our natives are of so exceedingly voracious habits that

they are, or have been, condemned as unfit to plant in any waters, but we have many shallow mud lakes that are totally unfitted for the better grades, and the voracious pickerel and yellow perch are perfectly at home in them. They furnish much pleasure, and a very palatable addition to the bill of fare for the people, and such waters should be kept well stocked with them.

I have visited all of the larger lakes in the State, and find the people about them very much interested in the protection of the fish, and all anxious for such contributions as I have been able to make from time to time; always willing to contribute to any additional expense that may be necessary to get fry for their lakes.

Last season we reared a fine lot of carp for general distribution, but not sufficient to supply the demand made upon us. Through the courtesy of the United States Commissioner we were supplied with sufficient to meet all demands. This season (1889), we have an abundance for all, and a finer lot of their age I have never seen.

Black bass have done exceedingly well in our preserves, and we are only wanting in pond room for breeding purposes to make large contributions to public waters. Several acres of pond room is necessary for a profitable venture in the propagation of black and white bass.

On account of the extremely low water there has not been the usual spring run of wall-eyed pike about our lakes in which our hatchery is located, consequently our inability to secure eggs without going to the Great Lakes. Ascertaining that I could purchase a supply at less expense than would be necessary to incur by going after them, I contracted for 5,000,000 for this season, but was disappointed in getting them, as the party could not obtain them at the usual station, and had to cancel all orders.

In ornamental fishes we have been extremely successful. Several thousand are annually distributed, and the demand appears to be without limit.

Croppies and white bass have been planted in small quantities to as great an extent as we have been able to procure, from waters wherein they are abundant, and planting where none, or at least a very few, existed.

There are many sloughs and bayous along our border rivers that could with profit be seined, and all young fry planted in our inland lakes and streams. These places are the natural breeding grounds for many varieties, and are often left by the receding waters, swarming with small fish that perish during the succeeding winters, or often from the evaporation of the waters.

I am informed that some of our railroads would willingly transport a car of such to replenish our lakes; but as we have no car for that purpose, we could do no more than to seine such as are in danger of perishing and put them in living water. This cannot be done without funds are appropriated for this purpose.

The unprecedented dry seasons of 1887-8 were very disastrous ones to the fish in nearly all the inland streams. A great many small lakes and ponds were entirely dry, as were many of the smaller streams. Larger ones, such as the Des Moines, Coon and Iowa, were so low that the fish they contained were congregated together in the deeper pools and were an easy prey to hordes of seiners and dynamiters that infest nearly every county in the State. The adult fish were shut off from their usual spawning grounds and a greater part of the annual increase thus lost.

Those parties that have been appealing to your Excellency for better enforcement of the fish laws, evidently have not taken the pains to examine the laws which they are so anxious should be enforced, or they would readily see the difficulty under which I have been laboring and the utter impossibility of enforcing some of them.

The attempts to enforce the sections prohibiting seining have, in nearly every instance, proven that these prosecutions were much more embarrassing to the Commissioner than the prosecuted.

The appropriation made by the Twenty-second General Assembly was inadequate to the requirements of the work of the Commission, were I to respond to all calls or complaints of violations of the laws; and I have therefore forwarded many such letter from complaints to the county attorneys of their respective counties, but so far have not heard of a single instance where they have taken any action.

They may have found on examination that these were only cases of supposed violations, or that the evidence was insufficient or unreliable. At any event, such references have not been fruitful of any good toward the enforcement of the laws for the suppression of unlawful fishing.

People generally dislike to become a party to law suits, wherein their individual rights are not particularly involved, however much they may be in favor of the enforcement of certain statutes, and consequently seek to throw not the responsibility in the case only, but the work of detection and securing of evidence upon the Commissioner; many times positively refusing to appear as informant or witness.

I have never sought to avoid any such responsibility, although

the statutes do not make it the duty of the Fish Commissioner to attend to this class of work. I think he should always be ready to assist in the protection of the fish in any of the waters of the State, as one of the most important branches of the work naturally coming under his supervision. But such work cannot be done unless he is provided with ample means to defray all legitimate expenses, and in that event he will find "Iowa" covering too much territory for one man to police in an effectual manner. Much better results could be brought about by dividing the State into about four districts, each under the supervision of a protector or warden, whose duty it shall be to see that the protective fish and *game* laws are enforced.

Let it be made the duty of the Fish Commissioner to render such assistance to each of these protectors or wardens as he may be able to accord them, when other duties that relate more properly to the propagation of fish and restocking of the waters will permit.

In one case, I spent several nights watching a crew of seiners before I could secure any positive evidence against them, and after a trial, lasting nearly three days, two of them were convicted, but through the blundering of the court officials, they finally rested *two nights and one day*, not in the county jail, but in a comfortable room in the court-house. The remainder of the seven days, including the five-day sentence, they were boarded at a hotel at the county's expense.

A third party pleaded guilty, paid all costs pertaining to his case and voluntarily surrendered his seine to the court (in lieu of the conditional remittance of his fine) and authorized the destruction of the same.

The justice sitting in this case, instead of destroying the seine, as contemplated at the time of its surrender, appropriated it to his own account and converted it into horse-nets.

Such prosecutions and punishments as this can have no moral effect whatever, brings the law into contempt and makes the labors of the Commissioner in this line not only odious to himself, but devoid of any good to the public.

The game laws stand on about the same footing, so far as the enforcement of them is concerned, although framed with greater care and discretion.

The penalties are more severe and the chances of conviction much greater.

It appears to me, from my intercourse with the people of Iowa during the last three years, that there is a strong sentiment in favor

of measures being taken to prevent the wholesale slaughter of birds as well as fishes.

Game and fish are looked upon as public property, and to many the manner and time of taking is second to nothing except the liability of punishment. Some person has a direct cause for desiring the enforcement of the major part of our statutes because the rights or privileges of some one is infringed upon when they are violated, but in the violation of our game and fish laws no person's individual interests are at stake and no individual feels called upon to punish the offender.

Individuals in various parts of the State spend hundreds of dollars every season going to and from sporting fields of other States that have been better protected, or that have not as yet been so wantonly devastated. Why should not Iowa spend a few thousand dollars annually for the perpetuation of the sport afforded by our lakes and fields?

Game and fish laws are analogous in the results anticipated for the public benefit, and I see no good reason why they should not be supervised by the same commission, and that commission be placed upon a business footing equal to its necessities, that it may be able to work greater benefit and be made an institution to which all citizens will accord a cordial support.

I find from my experience in attempting to enforce our protective fish laws that they are totally inadequate to do the work for which they were intended. I prepared a bill for the revision of our fish laws, which was introduced in both House and Senate of the Twenty-second General Assembly, but probably from lack of interest or on account of more important business it was not acted upon. It embodied some very important features, and I think would have been productive of such good results that every one would have seen and appreciated the wisdom of its enactment in this had it been placed upon our statutes.

It has been the opinion of the majority of our citizens, probably, that seines found in use or that may be proven to have been used in Iowa waters, are by specific statute liable to confiscation by the State; but such is not the case, and the more litigation the better every one becomes acquainted with its defects and the bolder the seiners become.

The acts of the Sixteenth and Seventeenth General Assemblies are somewhat conflicting in their provisions for the suppression of seining. While to an experienced legislator or person experienced in the construction of law, there might be no doubt as to the intent

of these two sections, it is so obscure that to the average juror in a justice court, where he receives no instruction on points of law, there is liable to remain a doubt that results in acquittal, and thereby establishing a precedent that works much harm to the enforcement of the law.

Section 6, chapter 70, acts of the Sixteenth General Assembly, reads as follows: "No person shall place, erect or cause to be placed or erected across any of the rivers, creeks, lakes or ponds of this State, any dam, seine, weir fish dam or other obstruction in such manner as to prevent the free passage of fish up or down such water course unless otherwise ordered by the Commissioner. *And from and after the passage of this act it shall be unlawful for any person to use any seines or net for the purpose of catching fish, except minnows that are natives to the water of the State.*"

Chapter 80, acts of the Seventeenth General Assembly, House File No. 571, an act entitled, "An Act to promote fish culture in the State of Iowa and to amend and consolidate the enactments heretofore passed for that purpose, amending chapter 70, acts of the Sixteenth General Assembly."

Section 5 of this act is nearly identical with section 6, as above given, only it omits the italicized clause, leaving it in doubt as to the intent to repeal the same, and such a serious doubt that the State has lost two or more cases on this issue. Again, if it is repealed, seining that does not prevent the passage of fish up or down through our water courses is not unlawful, and parties are not liable under the statutes for seining our lakes, nor streams when seines do not reach "across them in such a manner as to prevent the passage of fish."

From the report of the Illinois State Fish Commissioners, I see that they are experiencing the same difficulty under a section of their laws, almost identical with ours, and are asking relief from this same embarrassing situation at the hands of the law-makers of Illinois.

The act prohibiting the catching of wall-eyed pike and bass during the months of April and May, the non-enforcement of which some complaint has been made to you, is rendered futile for the reason that the possession of fish of either of these varieties during this closed season is under this act only circumstantial evidence of guilt and the burden of proof is on the part of the State that the parties in possession caught or killed them.

Chapter 9, acts of the Twentieth General Assembly, provides: "That no person shall take by spearing, with gaff-spear or other

device any fish from any of permanent lakes or ponds or outlets or inlets thereto, within the State of Iowa, any fish between the 1st day of November and the 31st day of May following."

No protection is afforded the fish in any of the rivers and creeks from this method of fishing, nor does the possession of spears on or about these restricted waters furnish more than circumstantial evidence of any unlawful use thereof.

Section 4, chapter 70, acts of the Sixteenth General Assembly, provides that, "Persons raising or propagating fish on their own premises on which there are waters having no natural outlet, supplied with fish, shall absolutely own such fish," etc.

Here arises the question what constitutes a natural outlet? Must it be a constant one, flowing all the year? If so, few, if any of our largest lakes have natural outlets.

Along the numerous streams and more especially the larger ones, are a multitude of bayous (or overflow lakes, more properly naming them), some of which are quite extensive and afford some of the finest fishing grounds in the State. Very few of these have a continuous outlet, and many of them have an outlet but a few weeks or even days in each year.

Many of these are meandered waters; again they are properly rightfully belonging under deed to the adjacent land owners.

How may we determine what constitutes a natural outlet? Litigation has arisen under this statute wherein the State authority has been set aside or else innocent citizens wronged, for if the contested waters were subject to this section, then the intent of the law has been thwarted; otherwise the innocent citizen compelled to litigate his lawful rights on account of obscure laws.

I have received many letters of complaint, and have personally known and investigated some cases of destruction of fish by the use of dynamite. This is a most wanton method of catching fish and should be prohibited under very severe penalties.

Everything within certain bounds is destroyed, and when the waters are very low from continued drouth, great quantities are killed in some of the deep pools where they are then congregated. The soft sucker-mouthed varieties are useless during the summer months, and such are left to pollute the waters for those that escape a like fate.

The matter of fish-ways has been agitated quite extensively in this and other States. It is not so simple a thing to construct a practical fish-way as many suppose, and I have been loth to advise any attempts to enforce the law relating to fish-ways until something

more definite as to the qualities of those now in use may be determined upon. When one is found that will meet the requirements under ordinary conditions, I hope to see them placed in every dam on our rivers.

One of the important questions that are likely to arise in the near future, in regard to piscatorial matters, is the injury done by the pollution of waters by city sewerage, and also by that of various manufactories, such as starch works, glucose works, packing-houses, etc. The only case that has attracted public attention so far in this State, is that of the Marshalltown glucose works.

In compliance with your request, I met Dr. Kennedy, Secretary of the State Board of Health, at Marshalltown, in May, and together we made a thorough investigation of the Iowa River and Linn Creek. The latter is the medium through which all the sewerage of the city of Marshalltown and the several factories and slaughter-houses is conveyed into the Iowa river.

We found the condition of the Iowa River, above the mouth of Linn Creek, not unlike any other of our prairie streams, containing nothing that is injurious to the general health of the community, or that of the fish that it might contain; but from the mouth of Linn Creek down it underwent a remarkable change: everything beneath the water was covered with a slimy, stringy mass, due, probably, to the starch waste from the glucose works.

Quite an exhaustive article by Dr. Kennedy, in the July Bulletin of the State Board of Health, give the opinions of Prof. McBride, of the State University; Prof. Parnell, of the Iowa Agricultural College, and Prof. G. E. Patrick, of the Iowa Agricultural Experiment Station, in which they state that the condition of the water in the river, as shown by the samples taken at various points between Marshalltown and Tama, is such as would be injurious, if not fatal, to the fish it contained. I visited Tama again in September, and found the sanitary condition of the Iowa River at that point even worse than in May. The stench arising from the dead fish, and the water, at the reservoir dam, two and one half miles above Tama, was very offensive, so much so that the workmen repairing the dam were compelled to cease their labors.

I did not succeed in finding any fish that were not so putrid as to preclude minute examination, but from my observations in other localities, where washings from compost heaps and cattle-yards have been drained into small fish-ponds, I am positive that some of the higher grades of fish can exist in such water.

The piscatorial phase of this case is really of minor importance to

the people along the river, as all authorities agree that there is serious danger of an epidemic following the warm season. Other local interests are at stake. The ice crop taken from the Tama reservoir was condemned on account of the impurities it contained. The water of the river has become so polluted that it is unwholesome for stock; and farmers living on the stream, that have always depended on it for stock purposes, have been compelled to provide water by other means.

The situation here is only what we may expect at other points, unless some other means or methods are provided for disposing of the sewage of large towns and their attendant factories. Our Iowa streams are small, and not of sufficient volume to serve as sewer and scavenger deposits for all of Iowa's refuse matter.

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N. M. McClerg	High Point.
M. V. McClerg	High Point.
J. S. Christ	Weldon.
Chas. Hull	Hopkinton.
Frank L. Teser	Hopkinton.
Jos. Hannun	Mediapolis.
M. Gaston	Brainard.
Conrad Roemer	Hansell.
C. H. Elliott	Iowa Falls.
Mrs. T. B. Knapp
D. W. Dutton	Mt. Union.
Robert Young	Mt. Pleasant.
W. P. Young	Mt. Pleasant.
H. L. Farr	Mt. Pleasant.
Noah Johnson	Mt. Pleasant.
E. Barney	Mt. Pleasant.
August Bruck	New London.
Samuel Hannell	New London.
L. Morse	Pioneer.
Patrick Dalton	Homestead.
James Dalton	Homestead.
Richard Dalton	Homestead.
P. Moore	Victor.
E. B. Moffitt	Newton.
Wm. Davidson	Baxter.
John Graff	Four Corners.
W. H. Proctor	Monticello.
G. W. Dickens	Hedrick.
Jerome Messenger	Keswick.
G. H. Dewey	Sawyer.
C. B. Stevens	Donaldson.
Wm. Hemmings	Big Mound.
T. F. Heator	Big Mound.
Geo. O. Hilton	Keokuk.
T. A. Kelly	Cedar Rapids.
Frank DeCamp	Letts.
Mark Shellabarger	Letts.
J. W. Shellabarger	Letts.
S. B. Snyder	Letts.
A. J. Weaver	Letts.
Henry Zimmerman	Letts.
John Murray	Derby.
J. A. Brown	Charlton.
Jos. Baker	Russell.
W. K. Mack	St. Charles.
H. Taylor	Earlham.
M. B. Sheldon	Clanton.
W. M. Leighton	Oskaloosa.
F. M. Frush	Knoxville.
Geo. M. Knodle	Medbourne.
E. L. Lennart	Albion.

D. W. Maytag	Laurel.
Amos Brown	Minilou.
E. F. Hyde	Glenwood.
Isaac Dalrymple	Osage.
Wm. Weise	Mapleton.
D. G. Crowell	Bluff Creek.
Roderick Kenmouth	Melrose.
Samuel Roney	Georgetown.
A. M. Powell	Elliott.
George B. Lindell	Mascatine.
J. R. Morris	Sibley.
John Kennark	Essex.
J. A. Moody	Shenandoah.
P. H. Hansen	Ruthven.
M. Redman	Graettinger.
J. H. Morf	Merrill.
Gustav Koehler	Macedonia.
L. R. McCulloch	Brooklyn.
A. G. Williams	Chester Center.
Carver, Steele & Austin	Grimell.
William H. Leighton	Blackmore.
H. T. Glendening	Ingart.
L. O. Innes	Mt. Ayr.
D. C. Lidrick	Mt. Ayr.
W. Lambert	Maloy.
M. T. Brown	Davenport.
Andrew Clawson	Story City.
L. J. Fitzgerald	Story City.
Timothy Smith	Toledo.
Frank Greeley	Gravitt.
F. Kelley	Sharpsburg.
B. E. Screener	Stam.
H. Cade	Lenox.
Albert Cain	Lenox.
G. W. Hart	Afton.
William M. Morrison	Lenado.
M. C. Sherod	Mt. Zion.
C. S. Millisack	Agency.
C. C. Gardner	Lenington.
Miles Bradford	Washington.
F. J. Lovett	Lineville.
J. R. Seales	Cambria.
O. K. Bergland	Lake Mills.
Nels O. Bue	Locust.
George W. Rensch	Pearson.
Frank Davis	Correctionville.
M. P. Speedy	Northwood.
W. F. Gibbs	Clarion.
Haribut, Hess & Co.	Des Moines.
John Gignor	Oskaloosa.
W. H. Gray	Eddyville.
Aaron Peterson	Charlton.

GOLD FISH DISTRIBUTION.

H. Gilbert	Ames.
J. F. Moore	Ames.
Mrs. F. M. Maxwell	Ames.
Mrs. Kate Starr	Algona.
W. W. Dodge	Burlington.
C. A. Overholt	Burlington.
H. R. Henderson	Burlington.
J. A. Klippish	Burlington.
W. P. Robinson	Bethany, Mo.
W. N. Shipley	Bethany, Mo.
W. T. Knapp	Charles City.
Mr. Stevens	Charles City.
J. C. French	Castalia.
C. W. Millard	Cromwell Center.
S. W. Millar	Cedar Rapids.
J. W. Henderson	Cedar Rapids.
Miss Libbie Blackett	Cedar Rapids.
T. A. Kilty	Cedar Rapids.
Henry Fellows	Colfax.
D. C. Fry	Colfax.
S. W. Pike	Carroll.
J. A. Scovrus	Carrollton, Mo.
Deaf and Dumb Institute	Council Bluffs.
Abe Stewart	Council Bluffs.
Dr. E. Homebrook	Cherokee.
John P. Banning	Cherokee.
James Archer	Cherokee.
J. S. Green	Cherokee.
Col. W. S. Dungan	Chariton.
A. N. Wright	Chariton.
Chas. K. Kirk	Chariton.
A. Parsons	Chariton.
E. S. Jones	Chariton.
Jno. C. Elder	Chariton.
Dr. J. W. Cully	Chariton.
Dr. W. A. Todd	Chariton.
Wm. Wilby	Chariton.
W. E. McKee	Des Moines.
J. S. Clarkson	Des Moines.
Aborn House	Des Moines.
H. P. Blose	Des Moines.

John Whitten	Des Moines.
V. P. Twombly	Des Moines.
J. H. Brinsmaid	Des Moines.
J. W. Deakin	Des Moines.
D. F. McCarty	Des Moines.
W. H. Patrick	Des Moines.
Wm. A. McEwen	Des Moines.
Col. E. T. Hooker	Des Moines.
Henry Uleyer	Elkader.
Mrs. W. Preston	Elkader.
G. Boynton	Eagle Grove.
A. Mack	Eagle Grove.
J. Rody	Eagle Grove.
G. Cornell	Eagle Grove.
Mrs. O. Young	Eagle Grove.
G. Anderson	Eagle Grove.
G. Hutchins	Eagle Grove.
G. Green	Eagle Grove.
O. A. Young	Eagle Grove.
S. B. Hewett	Eagle Grove.
G. Reed	Estherville.
George Klein	Estherville.
S. Morrison	Estherville.
A. L. Hilde	Estherville.
D. J. Dodge	Estherville.
Henry Riley	Estherville.
F. B. Hageman	Estherville.
J. Post	Estherville.
H. J. Bennett	Estherville.
H. C. Nevill	Estherville.
C. D. W. Clapp	Estherville.
B. H. Pendleton	Estherville.
Wm. M. McFarland	Estherville.
Dr. W. L. Richardson	Fort Dodge.
T. McMurtry	Goldfield.
O. C. McIntosh	Goldfield.
J. S. Braden	Goldfield.
J. W. Bellknap	Goldfield.
John Nicoll	Goldfield.
Joel Grover	Goldfield.
Mariam Mathews	Goldfield.
W. R. Palmetre	Goldfield.
T. B. Little	Goldfield.
A. Zollinger	Goldfield.
W. T. Sherwood	Goldfield.
Frank T. Montgomery	Grundy Center.
Mrs. Alpha Coffin	Grundy Center.
L. Heffelfinger	Grundy Center.
E. P. Ring	Lake Park.
M. M. Boswick	Iowa City.
H. E. Barber	Iowa Falls.
E. S. Ellsworth	Iowa Falls.

J. Calhoun	Iowa Falls.
F. E. Foster	Iowa Falls.
Mrs. Geo. Hines	Mechanicsville.
Mrs. Wooley	Maquoketa.
C. F. Petrie	McGregor.
H. C. Haeberler, 45*	Manchester.
G. H. Purly	Mason City.
T. H. Smith	Mason City.
Mrs. D. T. Purdy	Mason City.
Hugh Flemming	Mason City.
Mr. Haupt	Mason City.
Mrs. Cross	Mason City.
L. C. Kellar	Mason City.
Mrs. Bents	Mason City.
M. Murphy	Mason City.
Tom Cardie	Mason City.
Mrs. Barringer	Milford.
Mrs. Will Smith	Milford.
Mrs. James Loomis	Milford.
S. W. Weed	Minnie.
Mrs. Clark	Minnie.
Mrs. Check	Minnie.
Dr. J. E. Smith	Mauston, Wis.
Mrs. A. O. Stevens	Okoboji.
Mattie McQuerry	Pleasantville.
Mrs. Williams	Sanborn.
A. D. Nelson	Sanborn.
George Allen	Sanborn.
G. Cline	Sanborn.
H. C. Conant	Sheldon.
H. Hill	Sheldon.
M. W. Brown	Spencer.
M. George	Spencer.
Mrs. Broadgate	Spencer.
George W. Bender	Spencer.
R. Cummings	Spencer.
A. Hubbard	Spencer.
E. Chambers	Spencer.
R. Purdy	Spencer.
Will Zink	Spencer.
Charles Merrill	Spencer.
Edward Boyer	Spencer.
Mrs. Montour	Spencer.
C. M. Squires	Spencer.
L. Varney	Spencer.
Walt Davidson	Spencer.
L. Cutelle	Spencer.
Mrs. Stevenson	Spencer.
L. Secor	Spencer.
A. Malthouse	Spencer.

*To be distributed.

Mrs. J. Q. Adams	Spencer.
Mrs. Williams	Spencer.
Mrs. Andrews	Spencer.
Edward Brown	Spencer.
Mrs. Woodruff	Spencer.
H. L. Leeland	Sibley.
O. Lee	Sibley.
J. C. Davis	Spirit Lake.
Lyman Adams	Spirit Lake.
H. L. Goodrich	Spirit Lake.
Fred Riley	Spirit Lake.
S. L. Pillsbury	Spirit Lake.
W. F. Pillsbury	Spirit Lake.
C. T. Chandler	Spirit Lake.
J. R. Calvin	Spirit Lake.
D. C. Hunt	Spirit Lake.
Eva Mott	Spirit Lake.
J. Babcock	Spirit Lake.
Mrs. L. W. Sperbeck	Spirit Lake.
Mrs. W. Thomas	Spirit Lake.
L. W. Brown	Spirit Lake.
O. C. Stickney	Spirit Lake.
Mrs. Jemerson	Spirit Lake.
Dr. Stair	Spirit Lake.
B. B. Cooper	Spirit Lake.
Mrs. Tucker	Spirit Lake.
Mrs. E. C. Reuken	Spirit Lake.
Mrs. H. Brandon	Spirit Lake.
Mrs. D. S. Blakey	Spirit Lake.
Mrs. Yager	Spirit Lake.
Mrs. Barmore	Spirit Lake.
L. Watling	Spirit Lake.
A. H. Jarvis	Waverly.
S. Northy	Waterloo.
Hugh Flemming	Washington.
Mr. Cross	Washington.
Mr. Bents	Washington.
Frank O. Harrington	York Center.

BROOK TROUT DISTRIBUTION, 1888.

Bremer county.....	5,000
Howard county.....	5,000
Winnebago county.....	20,000

1889.

Bremer county.....	5,000
Allamakee county.....	5,000
Fayette county.....	5,000
Howard county.....	5,000
Delaware county.....	5,000

SCHOODIC SALMON DISTRIBUTION, 1888.

Spirit and Okoboji Lakes.....	30,000
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1889.

Allamakee county.....	2,500
Howard county.....	7,500
Cerro Gordo county.....	2,500
Hardin county.....	2,500
Delaware county.....	2,500

CROPPIE DISTRIBUTION, 1887.

N. S. Graham	Albia.
George Price	Albia.
A. A. Mason	Albia.
George Isenhardt	Casey.
H. V. Peckenpaugh	Reeder's Mills.
Storm Lake.....	Buena Vista county.

1888.

Deaf and Dumb Institution, Council Bluffs	500
Deaf and Dumb Institution, Council Bluffs (adult)	20
C. D. Bevilington, Winterset (adult)	41
Storm Lake	500
Silver Lake	500
Eagle Lake	300
Park Pond, Chariton	300
Isaac Hill, West Grove	100

Quite a number of attempts have been made to supply parties with adult croppies, but it is useless to expect any success in long shipments without an attendant, which would necessitate an expense that I would not feel justified in incurring.

WHITE BASS (*Roccus chrysops*).

Storm Lake.....	250
Eagle Lake	250
Clear Lake, 1887.....	500
Clear Lake, 1888	600
Deaf and Dumb Institution, Council Bluffs	300

STATEMENT OF EXPENSES OF THE IOWA STATE FISH COMMISSION.

DATE.	TO WHOM PAID AND ON WHAT ACCOUNT.	WARRANT.	AMOUNT.
1887.			
July	W. W. Stow, hardware bill.....	\$	13.40
July	E. L. Brownell, paint and oil.....		9.98
July	W. H. Bally, abstract of title and drawing legal papers....		15.00
July	Ole Rjorensen, two months' labor.....		90.00
July	E. D. Carlton, cash expenses.....		86
September 10	Warrant No. 3281.....	98.50	
August	L. Halcomb, labor on ponds.....		4.50
August	D. L. Riley, lumber bill.....		6.30
August	E. D. Carlton, cash expenses.....		28.58
October 4	Warrant No. 3719.....	30.38	
September	Henry Schmeideman, oats.....		13.75
September	Joe Schneidawind, blacksmithing.....		3.25
September	E. D. Carlton, cash expenses, distributing carp.....		12.31
October	E. D. Carlton, cash expenses, distributing fish.....		34.02
November 21	Warrant No. 4673.....	63.55	
1888.			
January	E. D. Carlton, cash expenses, express on fish eggs.....		13.55
January	Barron & Dodge, coal for hatchery.....		15.32
January	John Vautess, hay.....		12.00
January	E. D. Carlton, cash expenses.....		6.30
March	Ole Rjorensen, labor for August, September, October and November, 1887.....		119.87
March	Warrant for balance of 1887, appropriation.....	167.30	
	Total.....	\$ 368.84	\$ 368.84

STATEMENT OF EXPENSES OF THE IOWA STATE FISH COMMISSION.

DATE.	TO WHOM PAID AND ON WHAT ACCOUNT.	WARRANT.	AMOUNT.
1888.			
April	E. D. Carlton, cash, express on fish eggs.....	\$	1.85
April	E. D. Carlton, cash, express on fish eggs.....		7.50
April	Joe Schneidawind, horse-shoeing.....		80
April	Farr Bros, draying.....		1.00
April	A. Hartman, labor on ponds.....		0.75
April	E. D. Sanders, labor on ponds.....		1.50
April	Will Weed, labor on ponds.....		4.00
April	Ole Rjorensen, one month's labor.....		45.00
April	E. D. Carlton, cash expenses.....		10.45
April	Warrant No. 7219.....	82.85	
May	A. Hartman, labor on ponds.....		24.00
May	Will Weed, labor on ponds.....		30.00
May	J. Uptegraft, labor on ponds.....		25
May	United States Express Company, express on reports.....		75
May	Ole Rjorensen, one month's labor.....		45.00
May	E. D. Carlton, cash expenses, distributing trout.....		30.52
May	Warrant No. 7269, stationery and printing.....	131.05	
June	Funk & Buckert, stationery and printing.....		16.00
June	Chicago, Milwaukee & St. Paul Railway, freight bill.....		54
June	E. D. Carlton, paid express.....		1.85
June	Ole Rjorensen, one month's labor.....		45.00
June	Dan Backwheat, corn.....		3.00
June	C. Beckel, hay.....		4.80
June	D. S. Baker, oats.....		1.25
June	E. D. Carlton, cash expenses.....		36.25
June	Warrant No. 7344.....	114.70	
July	W. W. Stow, hardware.....		16.65
July	J. P. Calvin, fish food.....		3.94
July	Barron & Dodge, lumber.....		70.25
July	A. M. Johnson, oats.....		5.50
July	Ole Rjorensen, one month's labor.....		45.00
July	E. D. Carlton, cash expenses.....		1.00
July	Warrant No. 7802.....	126.25	
August	M. E. O'Brien, three million wall-eyed pike.....		60.00
August	Warrant No.....	60.00	
August	Joe Wiley, labor on ponds with team.....		15.00
August	M. G. McClintock, labor on ponds.....		45.00
August	Ole Rjorensen, one month's labor.....		45.00
August	E. D. Carlton, cash expenses.....		19.55
September	Joe Wiley, labor on ponds with team.....		34.00
September	John Wiley, labor on ponds with team.....		13.50
September	Frank Weed, labor on ponds.....		3.75
September	Dan Backwheat, corn.....		45.00
September	Ole Rjorensen, one month's labor.....		1.25
September	E. D. Carlton, cash, stamps.....		136.35
September	Warrant No. 8347.....	136.35	
October	Dr. Brownell, paint.....		16.75
October	W. W. Stow, hardware.....		8.97
October	Barron & Dodge, lumber.....		64.94
October	Wm. Vreeland, plastering.....		1.50
October	S. Wood, painting.....		12.51
October	Gilbert Bennett Manufacturing Company, galvanized wire screen.....		12.50
October	A. F. Bergman, mosquito net.....		.35

STATEMENT OF EXPENSES—CONTINUED.

DATE.	TO WHOM PAID AND ON WHAT ACCOUNT.	Warrant.	Amount.
1888.			
October	E. D. Carlton, cash expense, express.....	\$.....	\$ 5.65
October	E. D. Carlton, cash expense, distributing bass and carp.....		35.28
October	Ole Bjorensen, one month's labor.....		45.00
October	Warrant No. 900.....	304.42	
November	M. G. McClintock, labor on ponds.....		11.75
November	A. Hartman, labor on ponds.....		4.20
November	Ira Farr, team work on ponds.....		14.40
November	Chas. Wob, team work on ponds.....		75.00
November	J. W. Sperbeck, coal.....		5.25
November	United States Express Company, express on bass and carp.....		2.25
November	Ole Bjorensen, one month's labor.....		45.00
November	E. D. Carlton, cash expenses, distributing fish and trip to Hatchery.....		51.95
November	Warrant No. 903.....	337.20	
December	T. J. Francis, carpenter work.....		1.60
December	Adams Express Company, express on trout eggs and fish.....		7.50
December	Dr. McAllister, glass for aquarium.....		7.55
December	D. S. Blakey, oats.....		4.00
December	Smith & Schmidawind, blacksmithing.....		6.00
December	M. R. Comstock, trout eggs.....		75.00
December	E. D. Carlton, cash expenses.....		2.25
December	Ole Bjorensen, one month's salary.....		45.00
December 1889.	Warrant No. 940.....	148.50	
January	D. S. Blakey, corn.....		4.00
January	A. Pelek, 1 storm window.....		4.50
January	James Sperbeck, coal.....		6.50
January	Ole Bjorensen, one month's labor.....		45.00
January	E. D. Carlton, cash expenses.....		1.30
January	Warrant No. 999.....	62.20	
February	Harron & Dodge, lumber.....		2.25
February	United States Express Company, trout eggs from Grand Lake.....		5.55
February	E. D. Carlton, cash expenses.....		1.50
February	Ole Bjorensen, one month's labor.....		45.00
February	Warrant No. 905.....	63.40	
March	D. S. Blakey, horse feed.....		5.00
March	Ole Bjorensen, one month's labor.....		45.00
March	E. D. Carlton, cash expenses.....		1.85
March	Warrant No. 1016.....	31.85	
April	Express Company, express on carp, trout and hatchling jars.....		12.20
April	E. D. Carlton, 10 hatchling jars.....		25.00
April	Harron & Dodge, lumber.....		2.25
April	A. J. Welch, 25 trees for grounds.....		3.12
April	P. Galvin, stationery.....		2.00
April	Ole Bjorensen, one month's labor.....		35.00
April	E. D. Carlton, cash expenses.....		41.87
April	Will Wood, labor on ponds.....		12.00
April	Warrant No. 1017.....	158.51	
May	Sargent Bros. team work on ponds.....		9.50
May	Will Wood, work on ponds.....		3.00
May	Ole Bjorensen, one month's labor.....		35.00
May	E. D. Carlton, cash expenses, to Marshalltown, etc.....		20.92
May	Warrant No. 1076.....	74.42	
June	Harron & Dodge, cement.....		6.00
June	D. W. Hargard, relaying water pipe.....		19.95
June	W. Sides, relaying water pipe.....		6.00
June	S. M. Wheeler, relaying water pipe.....		11.75
June	Will Wood, relaying water pipe.....		19.25
June	W. De Lamarre, relaying water pipe.....		24.75
June	E. D. Carlton, cash expenses.....		2.25
June	Ole Bjorensen, one month's labor.....		35.00
June	Warrant No. 1117.....	117.05	
	Total.....	1,002.81	1,002.81

RECAPITULATION.

Total expenditures from July 1, 1887, to March 31, 1888.....	\$ 308.84
Total expenditures from April 1, 1888, to June 30, 1889.....	1,002.81
Total expenditures for biennial term.....	\$ 2,061.65

SPIRIT LAKE, IOWA, October 10, 1889.

I, E. D. Carlton, being duly sworn, on oath, depose and say that the foregoing accounts of the Fish Commission with the State of Iowa, are true, as I verily believe.

E. D. CARLTON,
Fish Commissioner.

Subscribed in my presence and sworn to before me, by E. D. Carlton, this 10th day of October, 1889.

W. F. CARLTON,
County Auditor in and for Dickinson County, Iowa.

[SEAL.]